

informs me that these butterflies will feed on decaying fruit as well as decaying animal matter. This fact I also noticed when examining the oranges. The peculiar thing seems to be that a butterfly will enjoy the sharp, acid juice of an unripe orange or lemon, yet it can be a no more erratic taste than that for the juice from a decaying carcass.

Entomological writings mention three other Lepidoptera in South Africa which have a similar habit of puncturing fruit, but curiously enough these are all moths. In the Transvaal a few years ago rather a serious epidemic occurred of *Ophiusa catella*, which brought ruin to the crops of peaches, plums, and grapes in many districts. In Cape Colony *Sphingomorpha chlorea* and *Ophiusa lienardi* have a similar habit. These moths attack the fruit at night or on cloudy days, while the butterflies work only on the brightest days. Furthermore, the moths are very stout bodied and possess strong, sharp probosces, quite capable of puncturing even a hard, green fruit.

These three examples will serve to throw discredit upon our old theory that the Lepidoptera are, as a rule, destructive only in the larval stage.

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## A NOTE ON THE COPULATION OF TICKS.

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DURING the past summer, while stopping at Mopea Sugar Estate on the Zambesi River, I spent a half day collecting in the forest, along a road frequented by cattle from the estate. Among other specimens collected was an unengorged female *Rhipicephalus* clinging to a leaf of a thorn tree (*Acacia* sp.) Apparently I had only one tick, but when I began to look more closely I found a mature male clinging firmly to the underside of the female, in copulation.

Upon examining these ticks more carefully I found that they were specimens of *Rhipicephalus ecinctus* Neumann.

Very few observations have been made upon the copulation of *Rhipicephalus*. Hooker (1908) states that the brown dog tick of America (*Rhipicephalus texanus*) moults upon the host, and as soon as the male is free from the nymphal skin he goes in search of the female and remains clinging to her until she drops from the host fully engorged. Lounsbury records that the brown tick of South Africa, *Rhipicephalus appendiculatus*, copulates on the host after a short feed; the female engorging to repletion, however, only after copulation.

These references seem to indicate that the species of *Rhipicephalus* copulate only on the host during the period of parasitism, and I am unable to find any reference in literature to any species of *Rhipicephalus* copulating before the period of parasitism. My observation on *Rhipicephalus ecinctus*, then, becomes of special interest.